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Mesenchymal stem cells: *In vivo* therapeutic application ameliorates carbon tetrachloride induced liver fibrosis in rats**Nermin Raafat, Sara M Abdel Aal, Fadia K Abdo and Nabila M El Ghonaimy**
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Background: Egypt has the highest prevalence of hepatitis C virus in the world with infection rate up to 60%, for which liver fibrosis or hepatic carcinoma is the final outcome. Stem cell therapy provides a new hope for hepatic repair instead of traditional treatment, liver transplantation, as it is safer, gives long term engraftment and avoid expensive immunosuppressive drugs and unexpected hazardous effects.

Aim: This work aimed at determining the therapeutic potential of mesenchymal stem cells (MSC) in hepatic repair as a new line of therapy for liver fibrosis.

Methods: 33 female albino rats were divided into three groups: Group I: 10 rats injected subcutaneously with olive oil, Group II: 13 rats injected with carbon tetrachloride (CCl₄) and Group III: 10 rats injected with CCl₄ then bone marrow derived MSC from male rats. Blood and liver tissue samples were taken from all rats for biochemical and histological study.

Results: Liver functions for group II rats showed significant deterioration in response to CCl₄ in addition to significant histological changes in liver lobules and portal areas. Those parameters tend to be normal in MSC-treated group. Group III rats revealed normalized liver function and histological picture. Meanwhile, most of the pathological lesions were still detected in rats of second group.

Conclusion: Undifferentiated MSCs have the ability to ameliorate CCl₄ induced liver injury in albino rats in terms of liver functions and histological features. So, stem cell therapy can be considered clinically to offer a hope for patients suffering from liver fibrosis.

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